

ZOOLOGY.—*Nemerteans from the northwest coast of Greenland and other Arctic seas.*¹ WESLEY R. COE, Scripps Institution of Oceanography. (Communicated by WALDO L. SCHMITT.)

A small collection containing 12 specimens of nemerteans was obtained in July, 1940, by Capt. Robert A. Bartlett at depths of 23 to 115 meters off the northwest coast of Greenland. The four species represented are of interest because none of them had been reported previously from that locality. All, however, had been collected formerly from other portions of the coast of Greenland and elsewhere in the Arctic. In this paper the distribution of each of these species as known at the present time is indicated, and a supplementary account is given of such organ systems as had heretofore been inadequately described. A list of the 30 other species that have been found in the Arctic is appended, with the geographical distribution of each.

Tubulanus annulatus (Montagu)

Gordius annulatus Montagu, 1804.

Carinella annulata Bürger, 1895, 1903.

One incomplete individual was dredged at a depth of 50 to 115 meters 1 mile northwest of Conical Rock. This specimen is 3 to 4 mm in width, indicating an individual having a total length of 20 to 30 cm when living.

This species is widely distributed on the eastern shores of the North Atlantic, from Norway and Great Britain to the Mediterranean; it has also been found in the South Atlantic, near the Cape of Good Hope (Stimpson, 1856). It is closely similar to *T. nothus* Bürger, which has likewise been found near the Cape of Good Hope (Wheeler, 1934). In the Arctic it was previously dredged near King Karl Land; also off Cape Platen and in the Karajak Fiord, Greenland. Only a few other species of nemerteans are known to have such an extensive geographical distribution.

Micrura purpurea (Dalyell)

Gordius purpureus spinifer Dalyell, 1853.

Micrura purpurea Joh. Müller, 1858; Bürger, 1903.

Four large individuals evidently belonging to this species were dredged at depths of 45 to 115 meters 1 mile northwest of Conical Rock, northwest Greenland. The specimens after preservation measured 60 to 90 mm in length and 4 to 5 mm in width, indicating a length in life of 150 mm or more. As is the case with many other invertebrates, these worms frequently reach a larger size in the Arctic than in warmer regions. Individuals from the coast of Scotland average considerably larger than those of the same species in the Mediterranean and if the specimens in this collection are correctly identified, those of the Arctic regions become even larger. The same condition holds for *Tubulanus annulatus*.

This species is common on the European coasts from Scotland to the Mediterranean. It occurs from the intertidal zone to a depth of 200 meters or more. In the Arctic it was previously reported from Karajak Fiord, Greenland; also from Hinlopen Strait at a depth of 80 meters.

Cerebratulus barentsi Bürger, 1895

One incomplete specimen measuring 11 mm in width was dredged at a depth of 24 meters off the north shore of Wolsterholm Sound, northwest Greenland. The deep reddish brown pigmentation of the body was still retained after preservation for three years.

This species is known only from Arctic seas, having been reported from Kara Strait, from the sea north of Spitsbergen, Hinlopen Strait, Karajak Fiord, Greenland, off Amsterdam Island, and elsewhere at depths of 40 to 1000 meters.

Amphiporus groenlandicus Oersted, 1844

The collection contained six specimens of this common Arctic species. These measured 60 to 80 mm in length and 4 to 6 mm in width. They were dredged off the north shore of Wolsterholm Sound, northwest Greenland at a depth of about 20 meters.

These specimens were without ocelli and agreed in all essential respects with the published descriptions of this well-known species.

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Serial sections of one individual showed that the internal anatomy conforms with that of other individuals described by Bürger (1895, 1903) from other portions of the Arctic seas.

Since Bürger's account contained no description of the armature of the proboscis nor of the reproductive organs, such descriptions may be included here. The stylet basis is rather slender, conical or elongated pear-shaped and about twice as long as the basal diameter. In these specimens the bases measure from 0.08 to 0.10 mm in length and 0.035 to 0.05 mm in diameter at the base.

The central stylet is nearly equal to the basis in length. With one exception the proboscis was provided with 2 pouches, each containing 3 to 5 accessory stylets. In one of the six specimens one of the pouches was divided into two parts. The number of proboscoidal nerves varies from 16 to 18.

The cerebral sense organs are large and situated immediately anterior to the brain, with posterior extensions on the ventral sides of the dorsal ganglia. Large nerves unite them with the dorsal ganglia and from each of them a slender canal extends forward to open ventrolaterally in an oblique groove near the tip of the head.

The nephridia extend forward as far as the lateral borders of the brain. Near the posterior end of the nephridial system a large efferent duct opens ventrolaterally on each side of the body. The intestinal caecum extends forward nearly to the brain and sends lateral branches as far as the dorsal sides of the dorsal ganglia.

The gonads are much more numerous than the intestinal diverticula, as many as four or even six ovaries or spermaries being cut in a single transverse section of the body. They are situated both dorsally and ventrally to the lateral nerve cords, but the genital ducts with few exceptions open dorsolaterally.

Each of the six specimens was infested by protozoan parasites. These were most abundant within the blood vessels but others were imbedded in the adjacent connective tissue parenchyma.

This species is widely distributed in Arctic seas, having been reported from both the eastern and western coasts of Greenland, from Hinlopen Strait, Barents Sea, and from the waters off King Karl Land, Jena Island, Franz Joseph Land, and Spitsbergen at depths of 4 to

450 meters. A similar species, *A. caecus* Verrill, was dredged at a depth of about 35 meters off the New England coast north of Block Island, Mass. Coe (1943) suggested the possibility that the two supposed species may later prove to be specifically identical.

Other species previously reported from the Arctic seas include the following:

Tubulanus groenlandicus (Bergendal). North Greenland.

Lineus koalensis Uschakow. Barents Sea.

Lineus maris-albi Uschakow. White Sea.

Lineus ruber (O. F. Müller). Circumpolar; coasts of Siberia; Greenland; Norway and Great Britain to Mediterranean; Madeira and South Africa, Labrador to southern New England; Alaska to California.

Lineus saint-hilairi Uschakow. White Sea.

Micrura impressa (Stimpson). Bering Strait.

Micrura lithothamnii Uschakow. Kola Fiord.

Cerebratulus brevis Uschakow. White Sea.

Cerebratulus fuscus (McIntosh). Off the coasts of Greenland and elsewhere in Arctic seas; Great Britain and Norway to Mediterranean.

Cerebratulus groenlandicus Punnett. Greenland and North Greenland.

Cerebratulus marginatus Renier (= *C. fuscus* Verrill). From off King Karl Land, Bremer Sound, Hinlopen Strait, Amsterdam Island, and East Spitsbergen. This species has a wide circumpolar distribution, being found on European coasts as far south as Madeira; on the eastern North American coast southward to Cape Cod and farther south in the offshore current; on the western North American coast southward to southern California and in the western Pacific as far south as Japan.

Cerebratulus melanops Coe and Kunkel. Gulf of St. Lawrence and northward.

Cerebratulus rigidus Isler. Novaya Zemlya.

Cerebratulus zachsi Uschakow. White Sea and Kara Strait.

Emplectonema derjugini Uschakow. Kola Fiord, Barents Sea.

Emplectonema neesi (Oersted). Coasts of Greenland, Iceland, Norway and Great Britain to Mediterranean.

Nemertopsis actinophila Bürger. Coasts of Bären Island; Ross Island; King Karl Land; Lomme Bay; Hinlopen Strait; from low-water mark to 240 meters.

Amphiporus angulatus (Fabricius). This com-

mon and widely distributed Arctic species appears to have been described also by Verrill as *A. stimpsoni*, *A. heterosorus*, *A. multisorus*, and *A. superbus*; also by Punnett as *A. thompsoni* and in part as *A. arcticus*. Greenland, Baffin Bay, Davis Strait, Labrador, Nova Scotia, and southward to Cape Cod on or near the coast and farther south beneath the offshore Arctic current. On the west coast of North America the species extends from the Arctic Ocean through Bering Sea, along the coast of Alaska and southward to Point Conception, California. On the Asiatic coast it occurs from Kamchatka to Japan.

Amphiporus hastatus McIntosh. Coasts of southern Greenland and northern Europe.

Amphiporus lactiflores Johnston. Shores of Arctic and North Atlantic Oceans, extending southward to the Mediterranean Sea and on the American coast to Cape Cod; intertidal zone to 200 meters.

Amphiporus littoralis (Uschakow), *Gurjanovella littoralis* Uschakow. Barents Sea, White Sea.

Amphiporus macracanthus Coe. Arctic coast of Alaska.

Amphiporus murmanicum Uschakow. Kola Fiord.

Amphiporus pulcher (Johnston). Coasts of Spitsbergen, Norway, and Great Britain to Mediterranean; Greenland to Massachusetts Bay. Some of the specimens described by Punnett as *A. arcticus* evidently belonged to this species.

Tetrastemma albicollis Uschakow. Kola Fiord.

Tetrastemma arctica Uschakow. White Sea, Novaya Zemlya.

Tetrastemma candidum Müller. Circumpolar;

Greenland to Madeira; South Africa; Alaska to Mexico.

Tetrastemma laminariae Uschakow. Kola Fiord; Novaya Zemlya.

Uniporus borealis (Punnett). Davis Strait.

Drepanophorus crassus Quatrefages. Widely distributed in Arctic, Antarctic and Tropics; dredged at a depth of 250 meters near Franz Joseph Land; coasts of Europe, Madeira, Mauritius, Kerguelen, Samoa, Tonga, Panama, West Indies.

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PROCEEDINGS OF THE ACADEMY AND AFFILIATED SOCIETIES

CHEMICAL SOCIETY

549TH MEETING

The 549th meeting (59th annual meeting) was held at the Cosmos Club on January 14, 1943. The reports of officers for 1942 were read and accepted. The membership of committees for 1943 was announced. Dr. P. HONIG, commissioner of the Board for the Netherlands-Indies, Surinam, and Curaçao, spoke on *Agriculture and nutrition in the Netherlands Indies*.

550TH MEETING

The 550th meeting was held at the Cosmos Club on February 11, 1943. Dr. C. B. PURVES, of the Massachusetts Institute of Technology, spoke on *The distribution of unsubstituted hydroxyl groups in some technical cellulose acetates and ethers*.

551ST MEETING

The 551st meeting and the annual dinner of the Society were held at the Y.W.C.A. on March 11, 1943. The Hillebrand Prize for 1942